

## CLAIM AMENDMENTS

1. (Currently amended.) A surgical kit for hip replacement comprising:  
a prosthetic femoral head and a reamer,  
said reamer being adapted to ream a socket into an acetabulum until the cancellous bone is exposed,  
the femoral head having a size and shape determined with reference to the weight of the patient for whom the surgical kit is intended and complementary to the reamer such that the femoral head can be fitted closely and directly into a reamed acetabulum whereby liquid between the femoral head and the socket will be subjected to a hydrostatic pressure in the range of 0.01-5MPa.
2. (Original.) A surgical kit according to Claim 1, wherein the hydrostatic pressure is in the range 0.5-2MPa.
3. (Original.) A surgical kit according to Claim 2, wherein the hydrostatic pressure is 2MPa.
4. (Currently amended) A surgical kit according to Claim 1 [ , 2 or 3 ] wherein a membrane [or spacers are] is provided which in use spaces apart the surface of the femoral head and the reamed acetabulum.
5. (New) A surgical kit according to Claim 1, wherein multiple spacers are provided which in use space apart the surface of the femoral head and the reamed acetabulum.
6. (New) A surgical kit according to Claim 4, wherein the membrane is of resorbable material.
7. (New) A surgical kit according to Claim 5, wherein the multiple spacers are of resorbable material.



8. (New) A surgical kit according to Claim 4, wherein the kit has a continuous/contiguous membrane with conforms to the shape of the surface of the femoral head and the reamed acetabulum.
9. (New) A surgical kit as claimed in Claim 4, wherein the kit has a membrane that is composed of a gel/hydrogel.
10. (New) A surgical kit as claimed in Claim 9, wherein the gel/hydrogel has fibrous materials therein for reinforcement.
11. (New) A surgical kit as claimed in Claim 4, wherein the kit has a membrane that comprises material selected from: cellulose nitrate, expanded PTFE, dacron, alginate and glycolic acid-lactic acid complex (PLGA); polyurethane; collagen mesh or gel; fibronectin; and polyfumarate.
12. (New) A surgical kit according to claim 1, wherein the surface of the femoral head is formed from a material adapted to deform and so sustain the hydrostatic pressure.
13. (New) A surgical kit as claimed in Claim, wherein the kit comprises multiple spacers and a membrane and the membrane is less rigid than the spacers.
14. (New) A surgical kit according to claim 4 wherein the membrane is adapted to deliver growth factors, stem cells, chondrocytes or fibroblasts to the liquid.
15. (New) A surgical kit according to claim 5 wherein the spacers are adapted to deliver growth factors, stem cells, chondrocytes or fibroblasts to the liquid
16. (New) A surgical kit as claimed in Claim 14, wherein said membrane is porous or permeable.



17. (New) A surgical kit as claimed in Claim 15, wherein said spacers are porous or permeable.
18. (New) A surgical kit according to claim 1, wherein the size (radius of curvature) of the reamer (ie cutting envelope of the reamer) is at most approximately 5mm greater than that of the femoral head so that the clearance between the femoral head and acetabulum is 5mm or less.
19. (New) A surgical kit comprising a reamer wherein the reamer is a modular shell reamer for joint refurbishment of a ball and socket anatomical joint such as a hip joint, having a shaft and a substantially part-spherical head separable from the shaft but capable of being securely coupled to the shaft in situ for use, the reamer head having reamer cutting teeth facing not only outwardly toward the socket surface in use but also inwardly toward the ball surface.
20. (New) A surgical kit for hip replacement comprising:  
a prosthetic femoral head and a reamer,  
said reamer being adapted to ream a socket into an acetabulum until the cancellous bone is exposed,  
the femoral head having a size and shape complementary to the reamer such that the femoral head can be fitted closely and directly into a reamed acetabulum, the size (radius of curvature) of the reamer (ie cutting envelope of the reamer) being at most approximately 5mm greater than that of the femoral head so that the clearance between the femoral head and acetabulum is 5mm or less.
21. (New) A surgical kit according to Claim 20, wherein a membrane is provided which in use spaces apart the surface of the femoral head and the reamed acetabulum.



22. (New) A surgical kit according to Claim 20, wherein multiple spacers are provided which in use space apart the surface of the femoral head and the reamed acetabulum.
23. (New) A surgical kit according to Claim 20, wherein the membrane is of resorbable material.
24. (New) A surgical kit according to Claim 20, wherein the multiple spacers are of resorbable material.
25. (New) A surgical kit according to Claim 20, wherein the kit has a continuous/contiguous membrane with conforms to the shape of the surface of the femoral head and the reamed acetabulum.
26. (New) A surgical kit as claimed in Claim 20, wherein the surface of the femoral head is formed from a material adapted to deform and so sustain the hydrostatic pressure.
27. (New) A surgical kit as claimed in Claim 20, wherein the kit comprises multiple spacers and a membrane and the membrane is less rigid than the spacers.
28. (New) A method for hemiarthroplasty of a hip joint comprising providing a prosthetic femoral head and a reamer, and using the reamer to ream a socket into an acetabulum until the cancellous bone is exposed, the femoral head having a size and shape closely complementary to the reamer, and fitting the femoral head directly into the reamed acetabulum, the configuration being such that liquid between the femoral head and the socket will be subjected to a hydrostatic pressure in the range of 0.01-5MP to stimulate formation of new cartilage between the bone and femoral head.



29. (New) A minimally-invasive reaming procedure for joint refurbishment of a ball and socket anatomical joint such a hip joint, comprising forming an access tunnel through the ball part of the joint, providing a modular shell reamer having a separable substantially part-spherical head and a shaft , and introducing the shaft of the reamer through the tunnel, introducing the reamer head separately and coupling the inserted end of the reamer shaft to the reamer head in situ, the reamer head, having reamer cutting teeth facing not only outwardly toward the socket surface but also inwardly toward the ball surface, and manipulating the reamer to ream both the socket surface and the ball surface.

30. (New) A modular shell reamer for joint refurbishment of a ball and socket anatomical joint such as a hip joint, having a shaft and a substantially part-spherical head separable from the shaft but capable of being securely coupled to the shaft in situ for use, the reamer head having reamer cutting teeth facing not only outwardly toward the socket surface in use but also inwardly toward the ball surface

31. (New) A method of making a surgical kit for hip replacement, the kit being as claimed in claim 1, the method comprising: determining the weight of the patient whose hip is to be replaced and estimating the contact area of the patient's hip joint required to ensure a hydrostatic pressure within the hip joint in the range of 0.01-5Mpa and providing a prosthetic femoral head and a reamer, the reamer being adapted to ream a socket into an acetabulum until the cancellous bone is exposed, the femoral head having a size and shape complementary to the reamer and selected to ensure the required contact area such that the femoral head can be fitted closely and directly into a reamed acetabulum of the patient's hip joint whereby liquid between the femoral head and the socket will be subjected to a hydrostatic pressure in the range of 0.01-5MPa.

32. (New) A surgical kit for hip replacement comprising a reamer, said reamer being adapted to ream a socket into an acetabulum until the cancellous bone is exposed, the size (radius of curvature) of the reamer (ie cutting envelope of the



reamer) being at most approximately 5mm greater than that of a femoral head of a patient on whom the reamer is to be used so that the clearance between the femoral head and acetabulum is 5mm or less.

33. (New) A surgical kit according to Claim 32, wherein a membrane is provided which in use spaces apart the surface of the femoral head and the reamed acetabulum.

34. (New) A surgical kit according to Claim 32, wherein multiple spacers are provided which in use space apart the surface of the femoral head and the reamed acetabulum.